

Last Mile Distribution of Off-grid Solar Products: Support Needs, Concerns, and Opportunities

2-3 December 2013 • German Development Cooperation Office, Addis Ababa, Ethiopia

Workshop Summary Report



Workshop organized by:

PREFACE

The recent explosive growth of the off-grid solar lighting sector (280% per annum over the last six months) affirms the potential for this technology to substantially increase access to a basic modern energy service in underserved communities. Recognizing this opportunity, governments and philanthropic organizations are expected to accelerate efforts to increase the availability and market uptake of off-grid solar lighting products in 2014 and beyond. To ensure that market interventions support rather than impede market growth, donors and their development partners need to better understand the dynamics of this rapidly changing market. Only by acknowledging the support needs, concerns, and challenges of the companies in the industry that are directly driving the development of this sector can development organizations effectively achieve their objectives and support the industry's long-term success.

Toward this goal, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), the International Finance Corporation (IFC), and the U.S. Department of Energy (DOE) convened a workshop in Addis Ababa, Ethiopia, in December 2013. The workshop brought together organizations that fund and implement support programs and leading companies that are engaged in last mile distribution of off-grid lighting products. The objective was to build an accurate and up-to-date understanding of the state of last mile distribution efforts in the dynamic, off-grid lighting market as a means to inform and improve the effectiveness of support efforts.

Based exclusively on input gathered from the participants, this report presents a synthesis of the discussions to highlight insights provided at the workshop. It is not intended as a full accounting or summary of proceedings. Topics that participants emphasized during the workshop, including ideas identified as priorities (via “voting” segments), are summarized.

The workshop topics correspond to four key areas that pose challenges to the industry, limiting the market's long-term development:

1. Financing
2. Government policy
3. Retail channels
4. After sales

The meeting was structured into two distinct roundtables: a Stakeholders Roundtable, which included companies, development partners, and industry consultants; and a Development Partners Roundtable, which was limited to participants from development partner organizations. In the Stakeholders Roundtable, companies presented overviews of their business models and outlined their perspectives on important challenges and ideas for support. Through facilitated group discussions, the participants then identified and discussed their main challenges, support needs, and concerns about development partner support in each of the four topic areas. Participants from private sector companies were asked to prioritize support needs by voting for the ideas that would be the most beneficial in expanding deployment of off-grid lighting products, and, conversely, by identifying ideas that could be detrimental to the industry. In the Development Partners Roundtable, donors and their development partners discussed key findings from the stakeholders meeting, provided overviews of their ongoing and planned activities, and identified areas of potential collaboration. Please refer to the Appendices for additional details.

Workshop Co-chairs

Bozhil Kondev, GIZ
Caroline McGregor, DOE
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Cover photos credit: Lighting Africa, a joint program of IFC and World Bank

EXECUTIVE SUMMARY

By addressing fundamental barriers to market development, donors and their development partners play a critical role in expanding the global market for clean, affordable, high-quality off-grid lighting. While these support programs help to lower transaction costs, reduce risk, and address market barriers—facilitating delivery of improved lighting services to millions of people at the bottom of the economic pyramid—care must be taken to avoid unintended market distortions that could inhibit long-term growth. Through workshop discussions, companies provided insights to inform and improve the effectiveness of current and forthcoming support efforts in the off-grid lighting market. Participants discussed current conditions on the ground, including specific challenges, support needs, and concerns. The most critical challenges identified include limited access to working capital for a rapidly growing industry; inadequate consumer information, and unfavorable government policies.

Well-conceived donor-funded support activities that respect and enhance competitive forces in the market can be vital in addressing these challenges, particularly the issues or market failures that cannot be addressed by industry alone. Company participants also expressed concerns and offered advice about aspects of existing or potential new support programs that could adversely affect the industry and long-term development of the off-grid lighting market (Table ES-I).

Table ES-I. High priority needs and concerns regarding donor support programs

(Each bullet in the table is linked to additional information provided in the report)

Market challenge	Support needs identified by companies	Concerns about support from donors
Finance	<p>It would be helpful for development partners to:</p> <ul style="list-style-type: none"> - Facilitate access to capital for small-scale and early-stage investments, as well as for working capital debt to support rapid market development - Provide information and endorsement services to inform lenders about this sector - Provide advisory services for preparation of funding proposals - Offer funding for innovation, both technology and business model 	<p>Development partners should avoid:</p> <ul style="list-style-type: none"> - Picking specific business models to support - Supporting programs without clear exit strategies - Providing consumer or reseller subsidies that distort competition among products or that affect product price and foster expectations of unrealistically low prices - Supporting programs that seek to reduce transportation and tax costs
Government policy	<p>It would be helpful for development partners to:</p> <ul style="list-style-type: none"> - Promote global quality standards with governments - Ensure a level playing field, e.g., encourage governments to stop subsidizing kerosene and/or waive import tariffs for solar lanterns - Clarify the roles of public actors 	<p>Development partners should avoid:</p> <ul style="list-style-type: none"> - Encouraging local government procurement focused on a specific product - Moving quickly to enact policy without conducting full analyses
Retail and distribution channels	<p>It would be helpful for development partners to:</p> <ul style="list-style-type: none"> - Provide market intelligence - Facilitate match-making and partnership development - Promote general awareness and consumer education 	<p>Development partners should avoid:</p> <ul style="list-style-type: none"> - Intervening in proprietary supply chains and individual business operations
After sales services	<p>It would be helpful for development partners to:</p> <ul style="list-style-type: none"> - Support recycling and establish a framework for disposal of obsolete and unusable products - Support end-of-life programs that focus on repair and refurbishment of obsolete products - Gather data and raise awareness about warranties 	<p>Development partners should avoid:</p> <ul style="list-style-type: none"> - Establishing systems for retailer accreditation
General /Cross-cutting	<p>It would be helpful for development partners to:</p> <ul style="list-style-type: none"> - Develop common metrics for documenting impacts 	<p>Development partners should avoid:</p> <ul style="list-style-type: none"> - Announcing support without timely delivery or without an accurate timeline for implementation

In a session with only development partners present, participants considered the industry input and identified the following key takeaways regarding ways to improve coordination:

- Before entering a new region or market, work together to establish agreement or best practices on how to execute programs in the same region without interfering with each other.
- When engaging governments, speak with a unified voice representing development partners.
- Hold regular dialogues with stakeholders to ensure open communication of planned activities and thorough understanding of market conditions—so that programs can be revised as needed.
- When exploring options for end-user financial support, consider the perspectives of companies and other partners working in the market and the lessons learned from others.

PRESSING CHALLENGES IDENTIFIED BY OFF-GRID LIGHTING COMPANIES

Distribution of solar lighting products to communities at the bottom of the economic pyramid (BOP) in Africa and other developing regions entails numerous challenges for manufacturers and distributors seeking to develop new markets. These challenges include high distribution costs, low initial sales volumes, immature distribution channels, limited consumer and supply chain information, and low retailer and consumer awareness, among others. Many of the challenges represent issues that may be best addressed by the private sector and are simply part of the long-term competitive landscape. Other challenges represent market failures that can effectively block the market from reaching maturity, and for which government or development agency intervention is needed to catalyze market development. While many of the challenges companies face are not unique to the portable solar lighting industry, industry-specific circumstances provide insight into the current market and help indicate whether support intervention is needed and how much is appropriate. The subsequent section presents perspectives on whether and how best to address challenges through support programs. The most critical issues that companies currently face are discussed briefly below:

LIMITED ACCESS TO FINANCE AND HIGH COSTS OF PRODUCT DISTRIBUTION

Limited access to commercial working capital for suppliers, importers, and distributors inhibits scale-up and innovation. Companies lack adequate funds to re-invest in their businesses as needed to rapidly increase production capacity or build inventory to meet growing demand. Financial constraints also impede efforts by companies to deploy innovations and roll out novel grassroots distribution models in response to the multiple needs of the regions they serve. Cash flow constraints inhibit the ability of companies to scale-up operations. Non-commercial funds require an extended decision process for financial awards (upwards of 3-6 months) so that by the time companies receive the funds, their needs have changed. Commercial finance is fast but major investors are typically unaware of the sector's existence/potential or are not interested or able to downscale to small investments (less than \$3 million). Investing in small enterprises can be administratively costly and complex for financiers. In addition, most companies do not have the expertise or resources to navigate the complicated process of applying for financing.

Reaching remote areas is costly. With limited infrastructure and roads to access isolated and rural areas, distribution chains serving such large yet remote customer bases can be long, complex, and expensive. As a result, product prices are higher in remote areas, profitability declines, and retailers tend to focus on urban areas instead.

EDUCATION AND AWARENESS

Consumer awareness of solar lighting products is low in target markets. Consumer education and awareness-building campaigns can demonstrate the value of high-quality modern lighting to consumers unfamiliar with the technology and can educate consumers on how to properly operate the products once they are purchased. Potential buyers are generally unaware of the availability and affordability of quality

modern lighting systems and do not know how to differentiate between products of high and low quality. A credible third-party source of unbiased information is particularly important for consumers in immature markets, where product brands are not yet widely recognized.

With limited market data and research available for this emerging sector, identifying and responding to market dynamics is difficult. Gathering market data is time-consuming and expensive, particularly for small companies, yet it is vital for developing effective plans for growth. Companies face challenges in obtaining up-to-date information on local markets. Such information is critically important for identifying credible partners and establishing trust with existing actors.

GOVERNMENT POLICIES AND OTHER CHALLENGES

Government policies are not consistent, import regulations are inconsistently enforced, and tax laws impact profits. Companies find it difficult to navigate various government bureaucracies, customs laws, and changing regulations. Tariff barriers and the costs involved in clearing customs increase product prices for end-users. Individual companies generally lack the connections or power to influence government policy, and the lack of communication between public and private sectors makes it difficult to respond to policy changes. Governments often lack the capacity to implement import rules supporting renewable energy products. In some instances, a clear disconnect exists between the energy ministries that back such support for renewable energy products and the finance ministries that direct their customs officers to collect duties on them.

Products are not designed to accommodate end-of-life uses. Neither companies nor governments have infrastructure in place for the proper disposal, recycling, or refurbishing of products, nor is there an understanding of what to do with obsolete technology. Local regulations are either non-existent or not enforced. No standards are in place to address end-of-life issues. These issues are exacerbated by the highly dispersed nature of the rural off-grid market. Establishing a mechanism to dispose of outdated technologies is difficult and involves managing reverse distribution logistics.

SUPPORT NEEDS IDENTIFIED BY OFF-GRID LIGHTING COMPANIES

Support programs can play a vital role in increasing access to solar lighting. Donor agencies have been instrumental in bringing the market to its current state in numerous areas. More specifically, they have helped to develop product quality assurance, economic instruments and finance, market intelligence, consumer education, and supportive national policies. However, as the market evolves in each area, the amount and type of support needed from these agencies is expected to change. Each market and region is unique; one region may require a completely different set of solutions than another. Quality assurance frameworks meanwhile serve to build confidence for both customers and investors. The support needs and concerns presented in this report reflect perspectives gathered from a cross-section of companies that face common issues, even though some operate in different areas. Their high-priority support needs are summarized below:

FINANCING

Facilitate access to capital for small-scale and early-stage investments. Companies wishing to scale up operations or innovate with new technologies and business models are significantly constrained by limited access to funds, including equity and debt financing. Companies need capital quickly, which is something that financial institutions could provide. Donors could facilitate company access to working capital from the financial industry by supplying loan guarantees and other risk-sharing tools. Given that banks and investors lack experience in working with the off-grid lighting industry and its emerging distribution chains and business models, such instruments could help reduce the risk that financial institutions perceive in lending/investing in the unproven, early stage companies that characterize this immature industry.

Provide information and endorsement services to inform lenders about this sector. Commercial financial institutions possess limited historical data on the industry, which creates greater uncertainty and leaves the industry with limited access to capital and/or higher borrowing rates. Donor efforts to collect, assemble, and disseminate better information on the off-grid solar industry could be instrumental in increasing interest among investors and financial institutions, ultimately improving the industry's access to capital. Specifically, a support program that works with the financial industry to identify and define risk parameters could remove some hurdles for investment.

Provide advisory services for the preparation of funding proposals. Companies providing off-grid solar lighting solutions to BOP communities maintain a range of in-house expertise in management, technology, business, and marketing; however, these companies generally recognize their lack of specialized expertise in institutional finance. A core support need, particularly for new market entrants, is assistance in improving this financial literacy in general to enable the development of bankable business plans. Specific support needs include advisory and technical services to help companies improve their value proposition to financial institutions and make successful applications for loans from commercial bank investors.

Offer funding for innovation—both technology innovation and business model innovation. Companies hold limited working capital, and the capital that is available is largely devoted to expanding business operations to meet rapidly increasing demand. If funding were to be available as “start-up” capital

for innovative distribution models, it would encourage companies to try new approaches to reaching underserved market segments and accelerate advancements in technologies and products. Such start-up capital would include funding for technology and business models at all levels, from entry-level to solar-as-service research and development. Funding would also support or broaden basic R&D on potential technology breakthroughs and novel applications for the future. Leveraging knowledge gained from research in technologies analogous to portable solar lighting may be a cost-effective approach. Other leveraging opportunities include engaging with the private sector and cost-sharing R&D efforts.

GOVERNMENT POLICY

Promote global quality standards with national governments. An influential voice is needed to promote global standards and provide a level of consistency among national governments. Development partners might encourage national governments to enforce standards or offer incentives for products that pass minimum standards. Development partners can also support government capacity building by providing information about customs and standards issues. This effort could be strengthened by working with organizations that have some clout when holding discussions with governments. The impact of implementing global quality standards vary by country. For example, Ethiopia’s adoption of Lighting Africa minimum performance standards has greatly reduced “spoilage” in the market (substantial import duties are in place in Ethiopia for products that do not meet the standard) while other countries do not recognize or enforce the standards.

Ensure a level playing field between solar lighting products and kerosene. Several national and local governments have policies in place that subsidize kerosene. While these legacy policies may have been originally conceived by well-intending policymakers seeking to reduce costs for a basic household need, the subsidies are now inhibiting far safer and cleaner solar lighting alternatives. The support of development partners is needed to work with governments to remove kerosene subsidies and other anti-competitive policies. This may be particularly challenging in some locations since kerosene has a long history as the primary off-grid lighting fuel, and governments may be influenced by a well-entrenched kerosene industry. In addition, support is needed to encourage governments to waive import tariffs for solar lanterns.

Provide clear and transparent information about the roles of development partners and various public actors. Companies would benefit from better understanding the roles, plans, and scope and scale of operations of local institutions and authorities as well as global and local development partners. This information, along with regular channels for disseminating it, would facilitate better coordination among companies, authorities, and development partners. For example, industry players who know the specific plans and activities of public actors will be better able to adapt their business plans to existing conditions, address the needs of their customers, and tackle evolving issues and dynamics in the market.

RETAIL AND DISTRIBUTION CHAINS

Provide market intelligence to identify new markets and reduce entry costs. Timely market intelligence can be instrumental in helping a company design a successful market strategy, but gathering such intelligence can be cost-prohibitive for any single company. A program that generates and widely distributes regular and up-to-date information would need to be pre-competitive (not favoring any single company) and would help to attract interest and facilitate growth in the market. Market intelligence should focus on retail dynamics and be country-specific.

Facilitate match-making and partnership development. Gathering, assembling, and disseminating a catalogue of potential distributor and retail partners would facilitate match-making among complementary

market actors. Resulting partnerships would help companies expand their operations and improve last mile distribution efficiencies. The catalogue would need to be location-specific and require regular updates.

Promote general awareness and consumer education. Public awareness campaigns using television, radio, and print media can stimulate demand and alert consumers to the benefits of solar products. Campaigns should be structured to create trust and generate demand for the products.

AFTER SALES

Support recycling and framework for disposal of obsolete products. What to do with a product at the end of its useful life often poses an environmental concern, particularly for products that cannot be repaired – i.e., they have built-in obsolescence. Donor support would greatly facilitate development of a transparent framework and standard industry procedures for recycling and disposal of obsolete and unusable products. The framework could incorporate information on recycling services provided by manufacturers. In addition, support programs could motivate progress by establishing awards to recognize exceptional recycling efforts.

Support end-of-life programs that focus on repair and refurbishment of used products, not just recycling. There is a need for end-of-life programs that focus on reuse, repair, and refurbishment – not just battery recycling. Recycling programs can have a positive impact, but they are not a sufficient solution alone. Products that can be dismantled and refurbished could have an extended lifetime, and the parts that reach the end of life can be fed into recycling streams.

Provide market education, warranty awareness, and data gathering. Support for warranty education, including training and awareness, would help build customer relationships and trust. Donor support programs could conduct structured surveys of consumer expectations on after-sales support and consumer protection. They could also facilitate development of standard definitions for data gathering.

GENERAL/CROSS-CUTTING

Develop common metrics for documenting impacts. Limited data are available to prove the benefits of off-grid lighting or the impacts of specific policies in a given country or region. This lack of data makes it more difficult to produce compelling materials for general marketing and education campaigns. Robust metrics and the supporting data could influence government decision-makers to promote off-grid lighting through policymaking. Establishment of common metrics for measuring impacts would help to develop more rigorous evidence of benefits and policy impacts (rather than theory or anecdotes). For example, data and metrics would enable a comparison between the impacts of investments in off-grid or on-grid technologies in terms of jobs, education, health, economy, and environment.

SUPPORT CONCERNS

As with any market intervention, care must be taken to avoid unintended market distortions that could inhibit long term growth. Along with the most impactful support needs—as determined by ‘votes’ from companies during the workshop—associated concerns or advice were offered. The concerns are based on support options that could result in detrimental impacts to the nascent industry’s business operations or detrimental to the broad goals of accelerating deployment and uptake of solar lighting products. The highest priority concerns with donor support programs can be summarized with the following recommendations:

FINANCING

Avoid efforts to address general market challenges by choosing to support individual business models. Supporting individual business models in a competitive market could lead to market distortions and create conflicts between market actors. Companies are best equipped to determine which sales models work best with their unique market and customer dynamics. Outside intervention that supports individual companies operating in a competitive environment can eventually alter markets, customers’ price expectations, and purchasing decisions and create advantages for individual companies without solving market barriers.

Avoid support programs without clear exit strategies. Programs that temporarily influence the market can have lasting impacts. In an industry without a long track record, any program, even if short term, can generate consumer expectations and introduce products that affect the market long after the program ends. A clear exit strategy should coordinate with companies and other players operating in the area. For example, if a program intervention bypasses the local financial services industry, an exit strategy that works with this industry should be developed.

Avoid consumer or reseller subsidies and end-user financing. Subsidies to the consumer or reseller can interfere with competition and be harmful to the market, impacting unique market customer relationships and dynamics. Short-term price subsidies that introduce unrealistic consumer expectations can be particularly detrimental to the medium term health of the market. This includes support for a given product, product category, or business model. End-user finance is seen as an issue for companies to address as part of their sales model rather than a market failure that would be appropriate for aid agency intervention. Depending on the structure of the subsidy program, they can disrupt pricing models that aim to advance customers up the product portfolio, create unrealistic customer expectations for prices, lock-in selected technologies, and create an unbalanced competitive landscape among some companies and markets resulting in fewer choices for consumers.

“Reports and analysis consistently underestimate purchasing power of BOP communities”

- Company workshop participant

Avoid programs that seek to reduce transportation and tax costs. Support programs that focus on altering product costs, even if specifically targeting certain logistics expenses and taxes, should be avoided. Similar to the concerns associated with consumer subsidies or end-user financing, such programs can inadvertently harm existing market relationships and dynamics. The temporary cost reductions only make

sense if they can bridge the market to a long-term sustainable reduction in costs. It can also introduce administrative complexity in location-specific pricing that could be burdensome to companies.

GOVERNMENT POLICY

Do not support government procurement of products that are focused on a specific product.

General purchases of solar lighting products by government is not seen as harmful, but targeted bulk purchases of specific companies' products could negatively impact the demand for equally performing products that are not included in the procurement program and thus be detrimental to their market position.

Avoid moving too quickly on government policy actions before doing full analyses. It could be counterproductive or harmful if industry representatives approached governments about policies and investments without having supporting data and studies and without engaging the industry to fully understand the impacts of such policies.

RETAIL AND DISTRIBUTION CHAINS

Stay out of proprietary supply chains and individual business operations. The public sector should not try to tackle business, operational, and value challenges. Each product distribution channel is different and this should not be the development partner's niche. This includes training for proprietary supply chain distributors, although providing funding to companies for training can be helpful. Establishing standardized training manual/program for distributors is not seen as a beneficial support effort.

AFTER SALES

Do not establish systems for retailer accreditation. Programs that certify or endorse retailers for after sales services could be harmful to specific companies' supply chains or business operations. Accreditation could set standards that unfairly harms (or favors) certain companies' operations or business models. Manufacturers and distributors view their distribution partners as a matter of competitive advantage and do not want donors/development partners interfering with this dynamic.

GENERAL/CROSS-CUTTING

Do not announce support without timely delivery or without providing an accurate timeline for implementation. Lengthy periods between the time an application for support (e.g., financing, technical assistance) is submitted and when the support is granted is harmful to business operations. Once the application approval has been announced, companies adjust their plans and operations to accommodate or adapt to the forthcoming support. If there is an unexpected delay in the provision of support or the implementation of the support program, short to medium term difficulties for business operations may occur.

CONCLUSION

Company perspectives and donor insights offer a means to inform and improve the effectiveness of current and forthcoming support efforts in the off-grid lighting market. Workshop participants broadly agreed on core areas in which support from donors would be beneficial and also identified specific activities that support programs should clearly avoid. Specific challenges, support needs, and concerns articulated by companies include the following:

- Before entering a new region or market, development partners should work together to assess the market and set up an ongoing dialogue among themselves and with companies working in that market. Partners should come to an agreement or establish best practices on how to execute programs in same region without interfering with each other. There is an urgent need to better coordinate or even leverage same-market efforts among entities.
- Development partners should examine government policies to identify areas in need of improvement and work together to address them, speaking with one influential voice. Coordination among partners can help to develop a better understanding of related activities in the region, which will help in conveying a unified voice to governments.
- Successful implementation of deployment strategies and support requires effective stewardship through regular and frequent dialogue with all stakeholders to ensure open communication of planned activities and a thorough understanding of the dynamic market conditions in target markets. Programs should be updated as appropriate, based on the latest conditions.
- When exploring new support activities for end-users, development partners should consider the perspectives of companies working in the market and lessons learned from similar experiences. Although end users face financing challenges, companies believe it is their responsibility to address this challenge in their sales and marketing plans rather than the responsibility of donor support programs.

OPPORTUNITIES FOR DONOR COORDINATION

Several opportunities for increased cooperation among members of the development partner community were discussed. Next steps for collaboration could include the following:

- Cooperative studies to address key support needs raised by companies (i.e., common metrics for documenting development impacts).
 - These studies could include analysis of the extent to which government policies and tariffs affect markets and market intelligence studies for specific regions
 - It would be useful to have a clearinghouse for market reports.
- Facilitate development of a framework for recycling and end-of-life use.
 - UNEP may be able to coordinate with an ongoing IFC/ Global Off-Grid Lighting Association (GOGLA) effort.
- Work with ad hoc donor coordination groups formed among donor missions in developing country capitals to build Energy Access Working Groups among staff specifically focused on energy access.
 - These working groups could jointly engage governments, industry, and other stakeholders to advance cooperation at the local level.

APPENDIX A: WORKSHOP PARTICIPANTS

Note: The full list of participants shown here attended the Stakeholders Roundtable. Participants listed below the dashed line also attended the Development Partners Roundtable.

<u>First name</u>	<u>Last name</u>	<u>Workshop Representation</u>	<u>Company/ Organization</u>
Simon	Bransfield-Garth	Company	Azuri Technologies
Allan	Demello	Company	Mobisol
Eliza	Hogan	Company	Barefoot Power
Güngör	Kara	Company	Prosonergy
Thomas	Köpke	Company	fosera
Thomas	Kyonze	Company	d.light
Charlie	Miller	Company	Solar Aid/ Sunny Money
Gladys	Okach	Company	Barefoot Power
Merron	Pillart	Company	Solarkiosk
Radhika	Thakkar	Company	Greenlight Planet
Peter	Adelmann	Independent	Private Consultant
Rodd	Eddy	Independent	Private Consultant
Samson	Atsbha	Development Partner	GIZ
Patrick	Balla	Development Partner	World Bank
Amy	Beeler	Development Partner	USAID / Power Africa
Agnes	Dasewicz	Development Partner	USAID / Power Africa
Ben	Good	Development Partner	GVEP
Carsten	Hellpap	Development Partner	GIZ
Jechoniah	Kitala	Development Partner	SNV
Bozhil	Kondev	Co-chair/Development Partner	GIZ
Caroline	McGregor	Co-chair/Development Partner	US Dept of Energy/ Global LEAP
Itotia	Njagi	Development Partner	IFC / Lighting Africa
Aneri	Patel	Development Partner	UNF
Graham	Pugh	Development Partner	US Dept of Energy / Global LEAP
Chris	Saunders	Development Partner	World Bank
Russell	Sturm	Co-chair/Development Partner	IFC
Olola	Vieyra	Development Partner	UNEP
Tameezan	wa Gathui	Development Partner	Practical Action
Matt	Antes	Meeting Facilitator	Energetics

APPENDIX B: WORKSHOP AGENDA

Last Mile Distribution of Off-grid Solar Products

2-3 December 2013

German Development Cooperation Office, Addis Ababa

STAKEHOLDER ROUNDTABLE – Day I

Time	Activity	Monday, 2 December, 2013
11:30-12:00pm	Arrival	
12:00-1:00pm	Joint lunch	
1:00pm-3:15pm	Opening Session <ul style="list-style-type: none"> Welcome, Introductions, Workshop purpose and objectives Presentation: State of Market Report for Africa, <i>Itotia Njagi, Lighting Africa</i> Company Presentations: Azuri Technologies, Barefoot Power, d.light, fosera, Greenlight Planet, Mobisol, Prosonergy, Sunny Money 	
3:15pm-3:30pm	Break	
3:30-4:45pm	Discussion Session 1 <ul style="list-style-type: none"> Retail and Distribution Chains <p><u>Focus questions:</u></p> <p><i>What are the main challenges faced in retail and distribution chains?</i></p> <p><i>What support is needed from development partners and governments to address the main challenges and why?</i></p> <p><i>What concerns do you have about support from development partners and governments and why?</i></p>	
4:45pm-5:00pm	Break	
5:00-6:00pm	Discussion Session 2 <ul style="list-style-type: none"> Customer Services and Consumer Protection (After Sales) <p><u>Focus questions:</u></p> <p><i>What are the main challenges faced in after sales?</i></p> <p><i>What support is needed from development partners and governments to address the main challenges and why?</i></p> <p><i>What concerns do you have about support from development partners and governments and why?</i></p>	
6:00pm	Adjourn	
7:00pm	Joint Dinner	

STAKEHOLDER ROUNDTABLE – Day 2

Time	Activity	Tuesday, 3 December, 2013
9:00am-9:15am	Opening <ul style="list-style-type: none"> Welcome, review of Day 1, plan for Day 2 	
9:15am-10:15am	Discussion Session 3 <ul style="list-style-type: none"> Financing 	
10:15am-10:30am	Break	
10:30am-11:30am	Discussion Session 4 <ul style="list-style-type: none"> Other topics, including Government Policy and General Awareness 	
11:30am-12:00pm	Closing Session <ul style="list-style-type: none"> Overarching reactions from group Next steps 	
12:00-1:00pm	Joint Lunch	

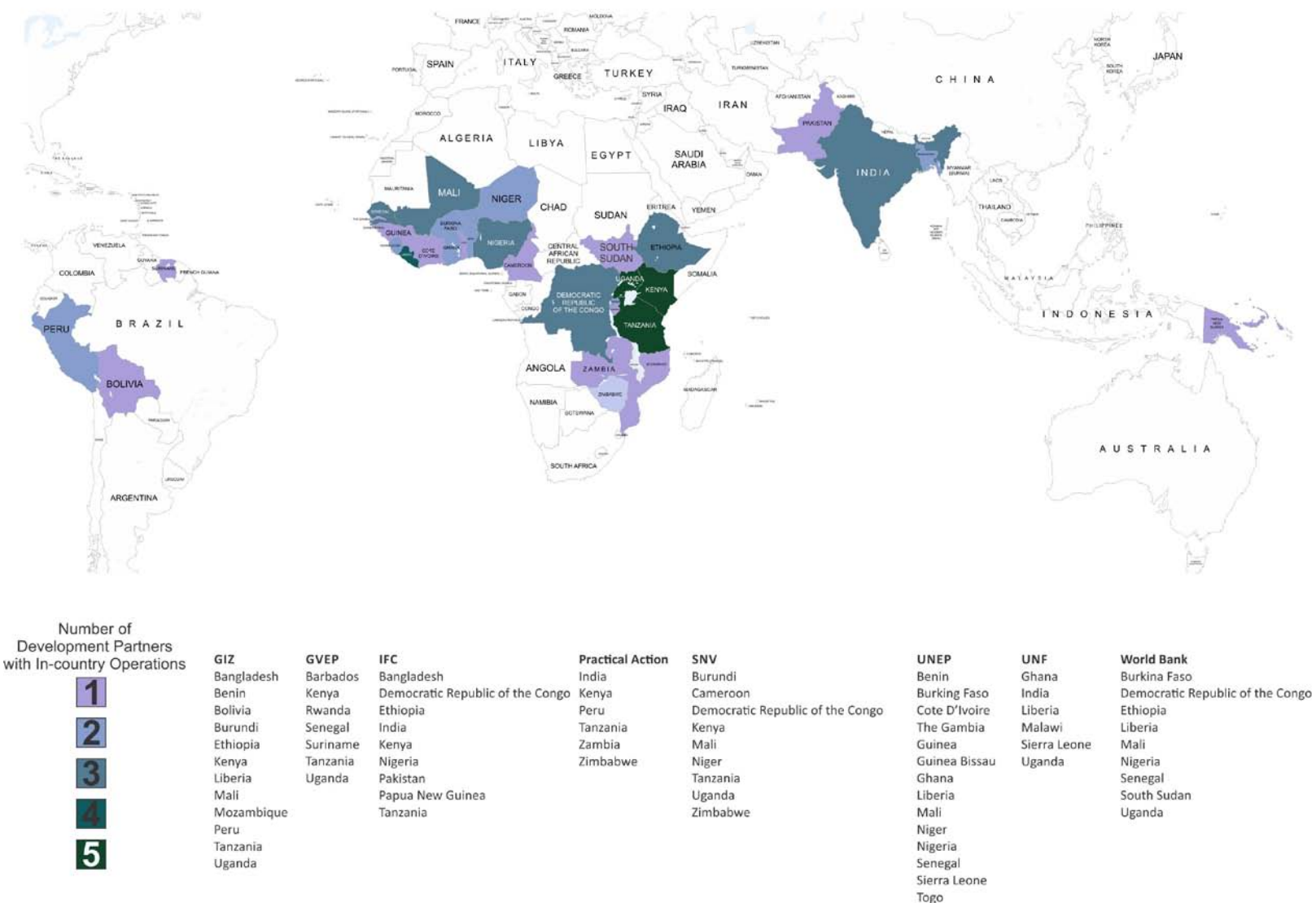
DEVELOPMENT PARTNERS ROUNDTABLE

Time	Activity	Tuesday, 3 December, 2013
1:00pm-1:15pm	Opening <ul style="list-style-type: none"> Purpose and objectives 	
1:15-3:00pm	Discussion Session <ul style="list-style-type: none"> Key Takeaways from Stakeholder Roundtable <p><u>Focus questions:</u></p> <p><i>What are the key learnings from the topic area discussions?</i></p> <p><i>How can donors and partners incorporate these learnings into the design and implementation of energy access programs?</i></p>	
3:00pm-3:15pm	Break	
3:15-4:15pm	Development Partner Overviews <ul style="list-style-type: none"> Presentations: Dept of Energy, DfID, Energy+, GIZ, GVEP, IFC, Practical Action, SNV, UNEP, UNF, USAID, World Bank <p>Existing and planned programmes, countries of operation, budget, types of assistance, target groups</p>	
4:15-5:15pm	Discussion Session <ul style="list-style-type: none"> Countries of Current or Planned Operation Areas of Potential Collaboration <p>Specific opportunities for collaborative engagement</p>	
5:15pm-5:30pm	Closing Session <ul style="list-style-type: none"> Final remarks and next steps 	
5:30pm	Adjourn	

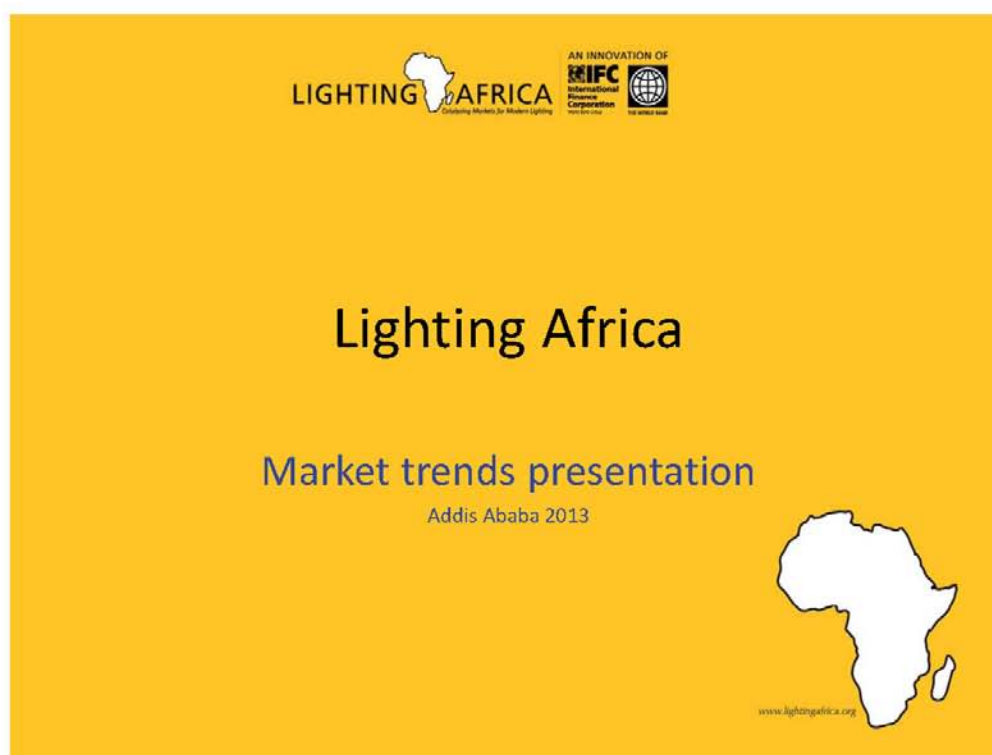
APPENDIX C: MAP OF DEVELOPMENT PARTNER ACTIVITIES IN OFF-GRID SOLAR LIGHTING

Note: This map shows activities underway or planned by development partners who were present at the workshop. It is meant to illustrate geographic opportunities for development partner coordination. It is not meant to be a comprehensive accounting of the locations of all ongoing activities.

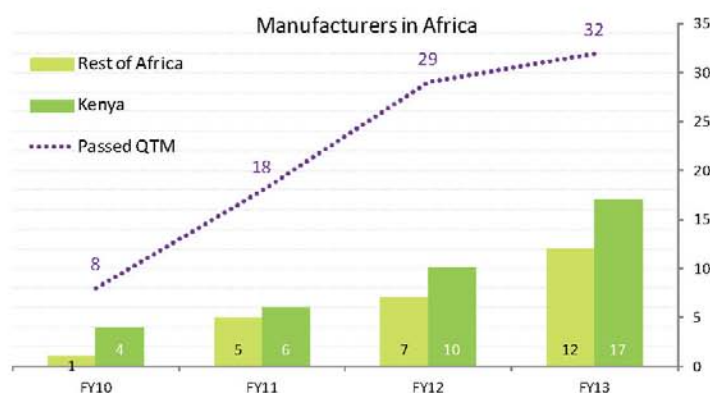
Opportunities for donor coordination: Countries with current or planned development partner activities in offgrid solar lighting



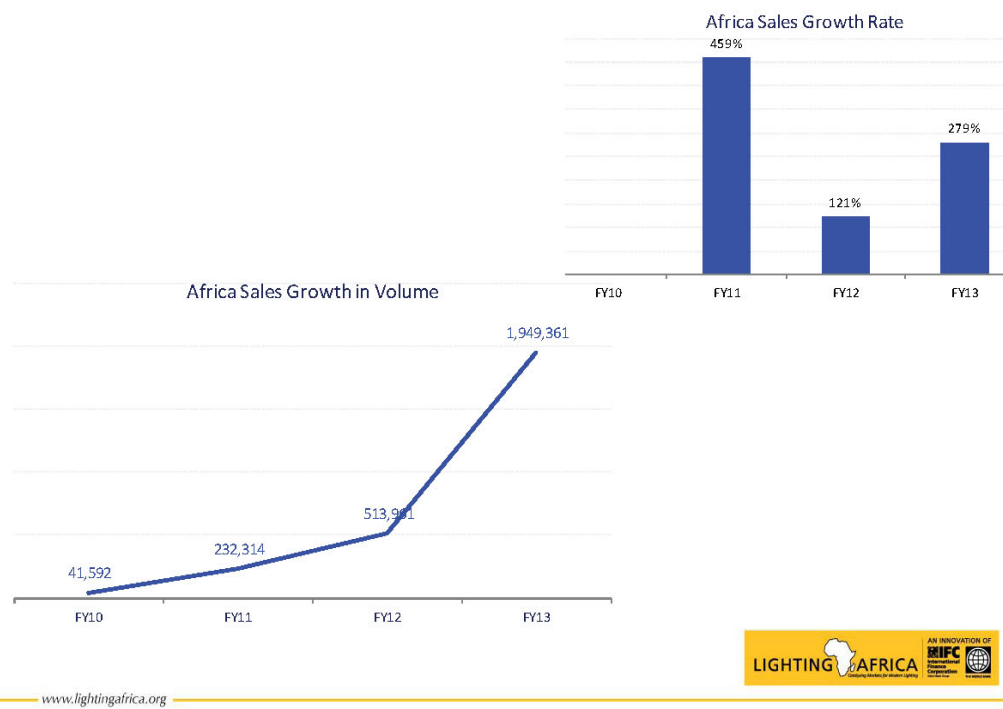
APPENDIX D: LIGHTING AFRICA PRESENTATION ON MARKET TRENDS



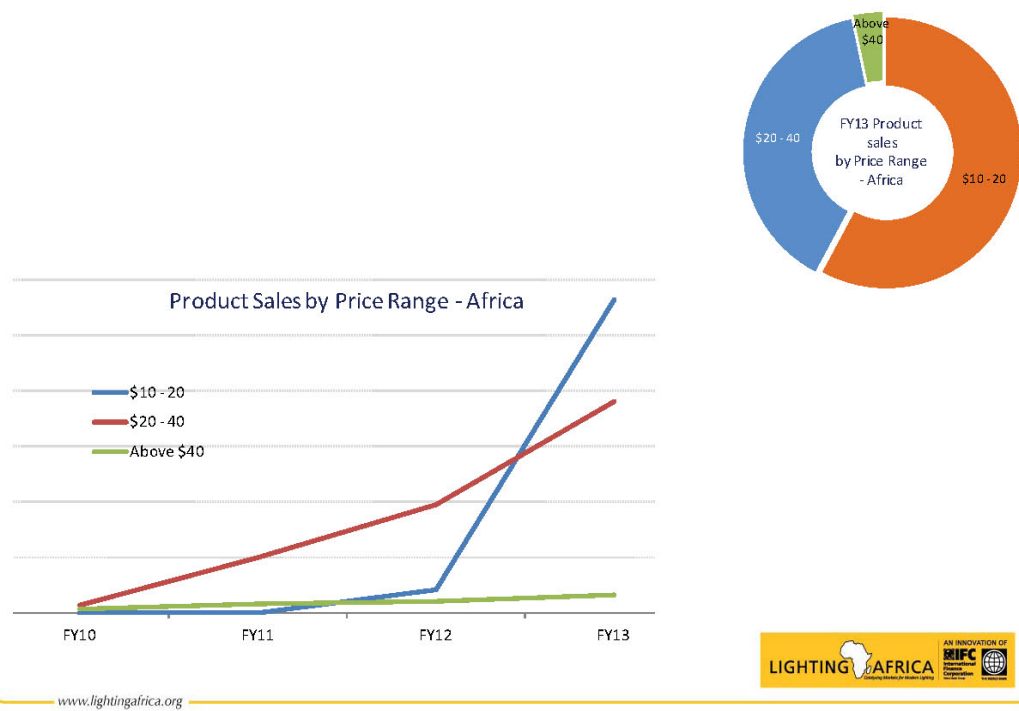
50% growth in new mfg targeting Africa..



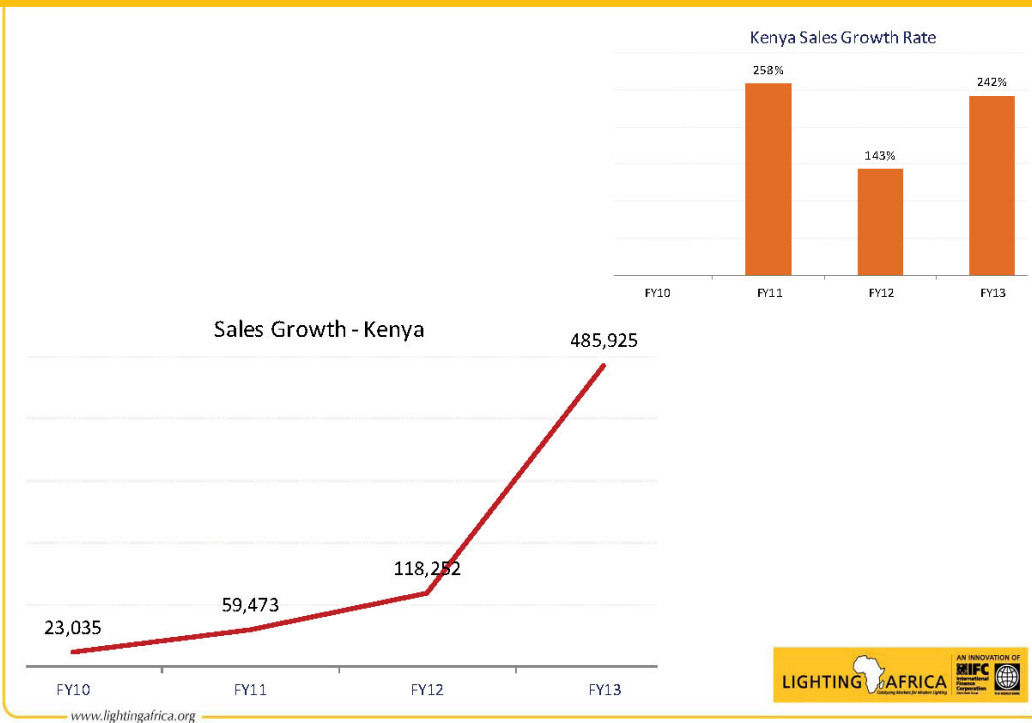
Africa growth averaging 200% per year (FY 12 + FY13)



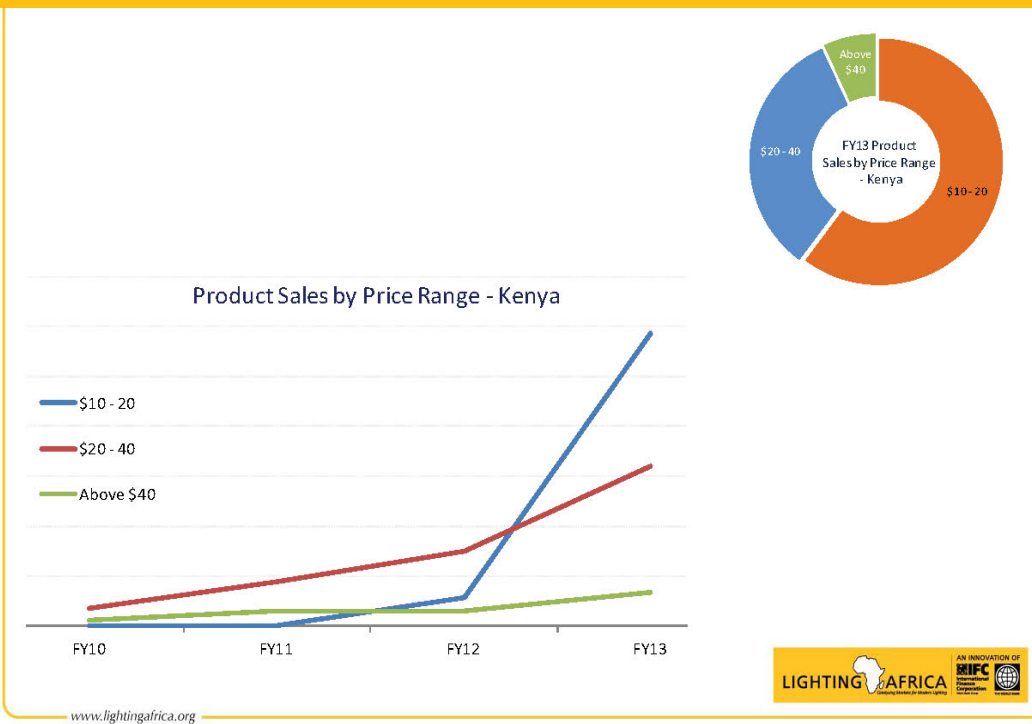
Entry level products dominate the market...BUT growth across all ranges



Kenya – 27% of total Africa sales...same pattern of growth

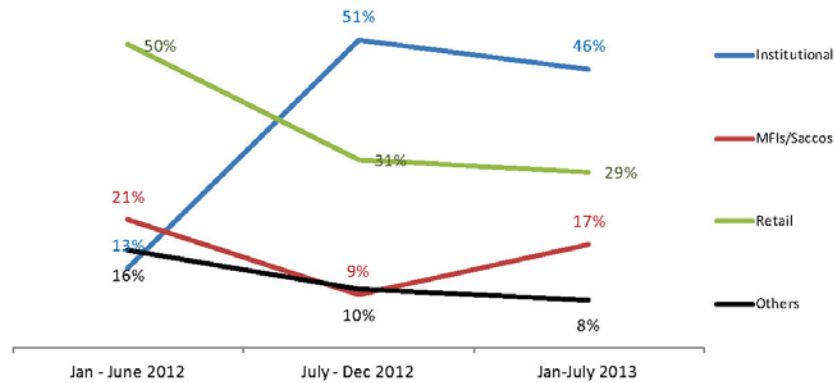


Kenya



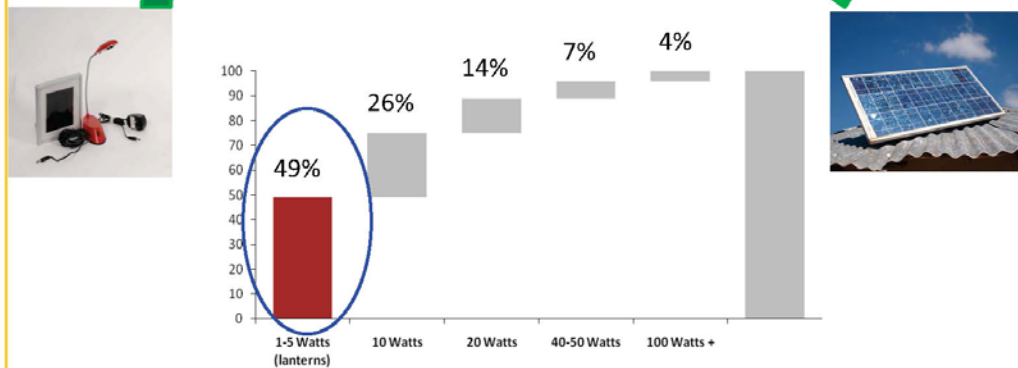
Kenya

Performance by channel of distribution



**Consumer's aspiration is driving innovation and new opportunities:
pico-powered lanterns are- the first step in the RE energy ladder**

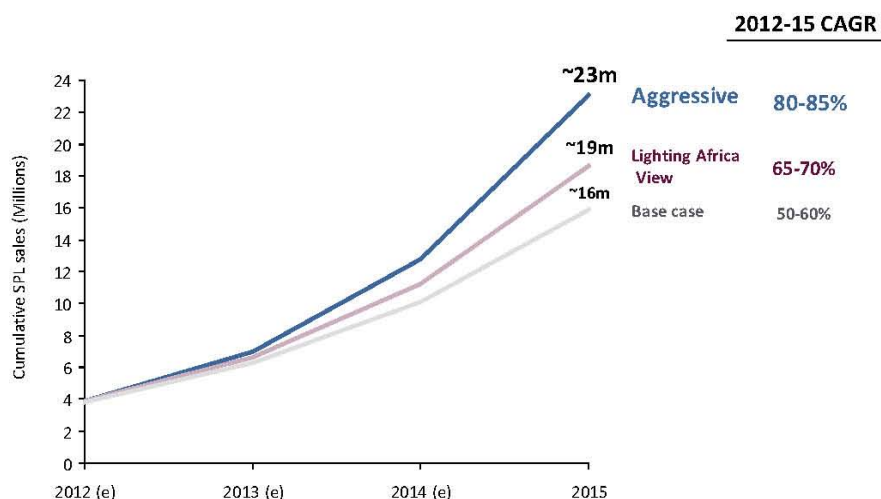
Segmentation of potential market for solar lighting devices



Cumulative sales could grow to ~23 million by 2015 in the aggressive scenario

Forecast of cumulative SPL sales in Africa over time

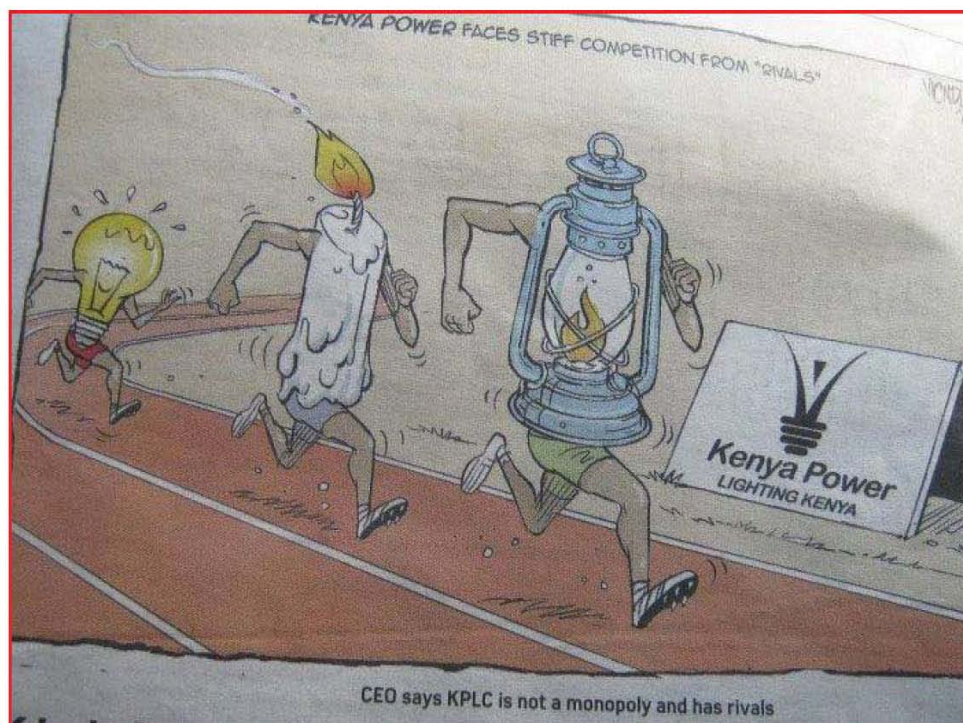
Million SPLs; 2008 - 2015



Aggressive scenario assumes (1) Entry of 2 MNCs; (2) Entry of 2 additional manufacturer-led brands; (3) High growth of pay-per-use models; (4) and aggressive rates of replacement and incremental sales

Source: Lighting Africa sales data, World bank data set on Population, Dalberg analysts

www.lightingafrica.org



www.lightingafrica.org

APPENDIX E: COMPANY PRESENTATIONS



Azuri overview

- Rent-to-own business model
 - Combining mobile and solar
 - Payment using scratchcards or e-payment
- 18 month cycle to product ownership
 - Weekly cost approx: half the cost of kerosene and phone charging it replaces



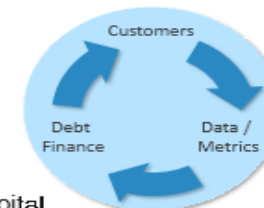
Energy Escalator

- Delivering the benefits of energy
 - In the form of self-powered consumer electronics
- Customer treats each device on its merits
 - As energy costs reduce, so the range of viable devices increases



Market growth drivers

- Pay as you go systems are proven
 - Reliable technology
 - Distribution
 - Metrics
 - But still only at '000 scale
- Main growth limitation is working capital
 - Cycle time typically 12 months
 - Commercial rates of interest
 - Attractive investment proposition
 - Conventional lenders still struggle – lack of “comparables”
- Commercial capital is the only long-term funding answer
- Requirement for risk-reduction intervention
 - Debt finance to prove the model at larger scale
 - Loan guarantees to de-risk early commercial investments
 - Standards for data gathering to achieve industry-accepted metrics





Powering Rural Communities

I

Business Models

- In-country distribution model with warehousing in Kenya, Uganda, Rwanda, Ghana, India and China
- Global Sales

Products



Challenges

- Continuous product development and launch costs
- Technical support in importer countries
- Supply gaps with in-country offices
- Lack of PR
- End-consumer financing funds
- Extensive funds needed for proper grassroots distribution models

Challenges

- Cash-flow constraints in-country offices
- Changes of taxation law
- Partnerships to reach grassroots model are challenging



Distribution Models

	Features	Challenges
MFI Models	<ul style="list-style-type: none"> * Generally large products, large network for selling products through loans * Extensive minimum 6 month work to start partnership * Higher cost, higher risk * Challenging logistics model 	<ul style="list-style-type: none"> Staffing with project management skills and staff working "inside of organization" Must have the tie in of senior management, inner company politics, corruption Extensive marketing budget needed Pilot to scale is generally the most difficult
Employee Programs	<ul style="list-style-type: none"> * Great products for margin * Great for any size of product * Cash or SACCO programs * Buy bulk or discounted rates 	<ul style="list-style-type: none"> * Gatekeepers and potential for corruption
Light Up A Village Model	<ul style="list-style-type: none"> * Community Development Model for Lighting up A Village 100 minimum homes * Revolving funds * Installation 	<ul style="list-style-type: none"> * Partnerships for Light Up A Village- implementing and funding * Setting up long-term revolving funds plus the management of the fund * Supporting technology needed for fund management
IS	<ul style="list-style-type: none"> * Documenting and training for scale-up 	

Support Needed

	Areas of support	Details
Financing	<ul style="list-style-type: none"> * Trade finance fund to grow * Additional avenues for end-consumer financing * Innovation funds for pilot * General working capital * Market exploration funds 	<ul style="list-style-type: none"> * Importer funds * MFI funds can be complicated for end-consumers * Funds for reaching grassroots
Partnerships	<ul style="list-style-type: none"> * Complimentary skill sets or funds * Supporting current models of SMP * Supporting scale-up * Not going to bring in all the competition * Specialists in particular fields (experts) * Market intelligence 	<ul style="list-style-type: none"> * Access to communities * Commitment to growth and sustainability * Diluting and creating unsustainable models * Supporting in specific areas of development
IS		



Introducing d.light

Our Purpose



To create new freedoms for customers without reliable power so they can enjoy a brighter future

Our products



S2- >\$10



S20- ~\$10

S300 \$40



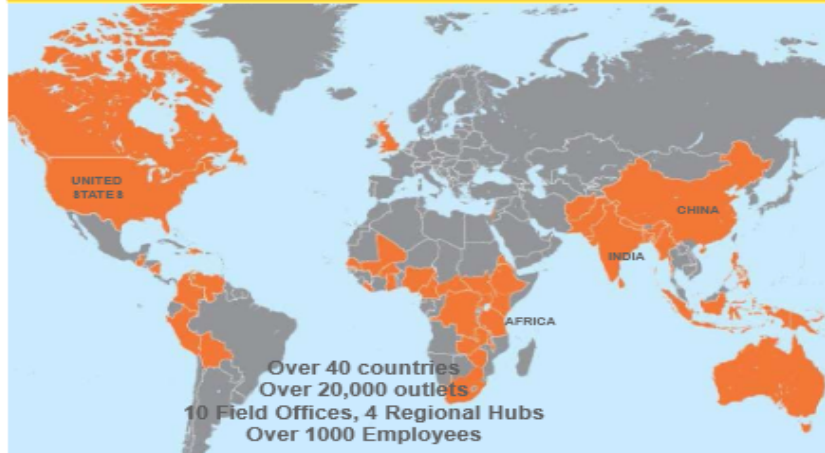
d.light D20



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4

Where are we?



How do we work?



Challenges



- **Financing**
 - Distribution partners- Forex/capital
 - Distributors- Retail Financing
 - End Users- consumer financing

Because this is not yet an established and mature channel, distributors are not easily able to get commercial bank loans as working capital to bring in inventory.
- **Marketing** — Off-grid solar lighting companies are establishing a brand new category - so selling the products requires a significant investment in customer education to build up awareness and understanding of the overall category. This type of customer education / category awareness building investment won't be needed as the market gets more mature, and this is an area where development partners can support to accelerate the market.

Assistance



- **Financing-** this is an area where development partners can support to ease the access to financing for distributors.
 - Loan arrangement / Financing to poor
- **Training**
- **Cheap products**
- **Government regulations**
- **Ethiopia Forex problem**



AGENDA

- 1) Main Features of the business model
- 2) Main Challenges faced with last mile distribution
- 3) Ideas how development partners can support

1) Main Features of the business model

- Research and Development in Germany
- Main Factory, OEM production and procurement in Thailand
- Assembly lines in India, Mozambique
 - Soon in Ethiopia, Kenya, Portugal
 - Planned in Liberia, Bangladesh
- Sales to about 50 countries.
- Wholesalers have usually retail partners in smaller towns



Why Assembly lines?

Advantages for the country

- Local Job creation
- Industry development
- Trained technical personnel for good after sales service

Why Assembly lines?

Advantages for the company

- Acceptance by the local population higher
- More flexibility (production on demand)
- Duty advantages (long term)
- Better product - adjustment to the individual local demands



NAME

4



NAME

5

2) Main challenges faced with last mile distribution

- Low storing capacity of Retail partners
 - Buy small quantity with high transport costs
 - Suppliers credits not common
- Retailers often not trained properly to give good customer service
- Quick & Easy business preferred. Little efforts of the retailers to reach rural areas

2) Main challenges faced with last mile distribution

- Financial Capacity of the Importers not sufficient for imports in efficient quantities and to give proper support to the partners
- Other products for rural areas usually supplied from central points (e.g. Merkato Merchants) → High quantities needed to penetrate the rural market properly
- How to trust a product which you want to have but which would still be a bad investment if failing after one year



NAME

6



NAME

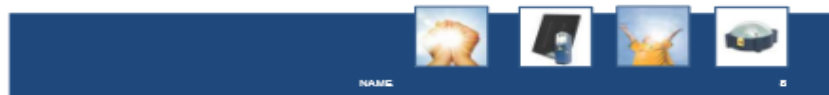
7

3) Ideas how development partners can support

- Transport & Warehousing support
- Awareness creation in partnership with trusted local institutions
- Marketing support for trusted products
- Retailer/Entrepreneur Trainings
- Help with CDM Control Mechanisms/Statistics
- Integration of Experts into pioneering companies

Company Overview

December, 2013



Smart ideas. Brighter lives.



Company Snapshot



- **Founded by Patrick Waleh In 2005**
Patrick was working with an NGO in Keonjhar, Orissa to develop village electrification solutions. Patrick saw the potential for low cost, high quality solar powered lights and began developing the technology at the University of Illinois at Urbana, Champaign.
- **Launched commercially June 2009**
Co-Founder Anish Thakkar (CEO) joined Patrick to launch the business in June 2009.
- **Seven offices in 4 countries:**
Chicago (US), Shenzhen (China), Nairobi (Kenya), Mumbai, Delhi, Patna, Shubaneswar and Lucknow
- **Over 1,500,000 homes reached in India and Africa**
Greenlight Planet has launched its Sun King™ products in Bihar, Orissa, Uttar Pradesh, and 25+ countries in Sub-Saharan Africa, Latin America and Southeast Asia. To date, over 1,500,000 homes are lit by Sun King™, serving an estimated 6,000,000 users.
- **Strong partnerships with major commercial and social organizations:**



One Acre Fund



J.P.Morgan

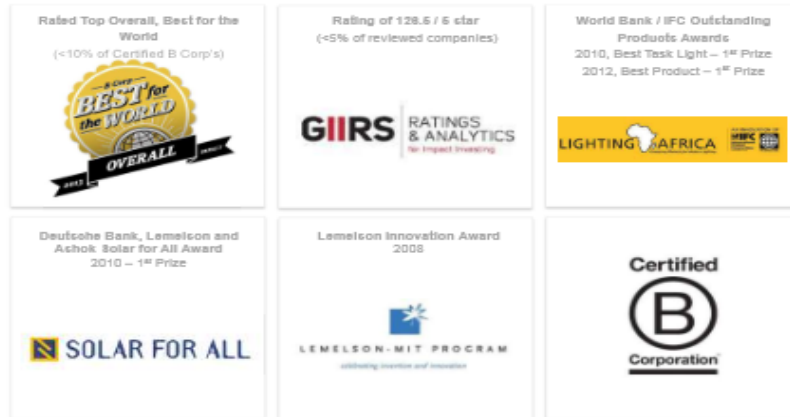


Fullerton India



Smart ideas. Brighter lives.

Recognized leader in our industry



Smart Ideas. Brighter Lives.

Growing mass media recognition



Smart Ideas. Brighter Lives.

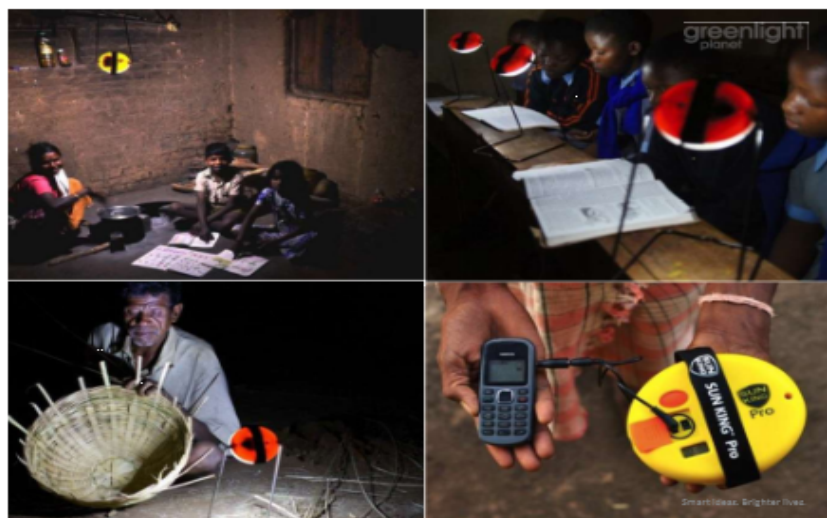
Sun King™ exists offer an alternative to unhealthy, expensive kerosene lanterns used by village families in India and Africa



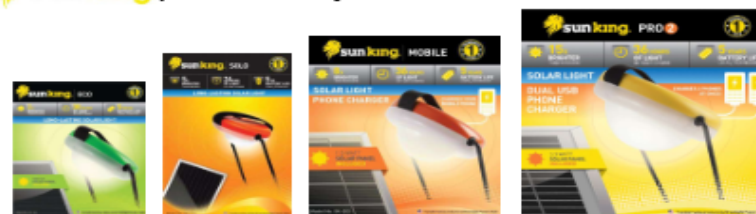
Smart Ideas. Brighter Lives.

Products

Smart Ideas. Brighter Lives.



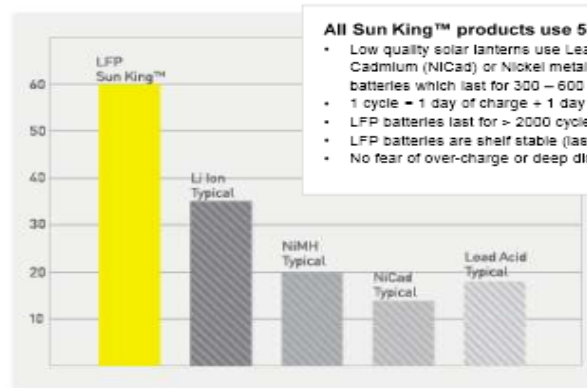
sun king product family



Eco	Solo	Mobile	Pro 2
500 mW	700 mW	1.5 Watt	3.3 Watt
2X brighter than kerosene lantern 25 lumens	5X brighter than kerosene lantern 50 lumens	8X brighter than kerosene lantern 75 lumens	15X brighter than kerosene lantern 150 lumens
4 hours on turbo 30 hours on low power	4 hours on turbo 24 hours on low power	6 hours on turbo 30 hours on low power	6 hours on turbo 30 hours on low power
5 year LFP battery	5 year LFP battery	5 year LFP battery	5 year LFP battery
-	-	USB mobile charger	2X USB mobile charger
\$11 USD	\$16.50 USD	\$32 USD	\$44 USD

Sun King™ leads the industry in battery technology

greenlight planet



Battery life in months

All Sun King™ products use 5 year LFP batteries

- Low quality solar lanterns use Lead Acid, Nickel Cadmium (NiCad) or Nickel metal hydride (NiMH) batteries which last for 300 – 600 cycles
- 1 cycle = 1 day of charge + 1 day of discharge
- LFP batteries last for > 2000 cycles (> 5 years)
- LFP batteries are shelf stable (lasts longer if left unused)
- No fear of over-charge or deep discharge

Smart ideas. Brighter lives.

Sun King™ Mobile

The affordable solar mobile charger

greenlight planet

- Improved light quality: 75 lumen, white light output improves light usability and customer satisfaction
- USB charging port: charges nearly all mobile phones or USB devices
- Graphical LED meter displays backup and solar charging power

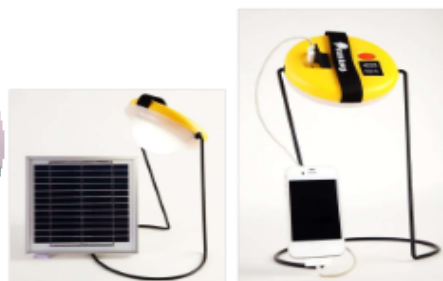


Sun King™ Pro 2

The world's highest-performing solar lantern

greenlight
planet

- **The brightest Sun King light:** 150 lumens – 1500% brighter than kerosene lanterns
- **2X USB charging port:** charges multiples phones per day. Powerful enough to charge advanced smart phones
- **Graphical LED meter** displays backup and solar charging power



User-friendly LED meter

Featured on the Sun King™ Mobile and Pro 2

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planet



When light is on or charging a mobile phone
BATTERY METER displays amount of backup



When charging using the solar panel
• SOLAR METER displays intensity of solar charging
• 5 bars indicates high sun intensity = fast charge
• 1 bar indicates low sun intensity = slow charging



Sun King is available in more than 25 countries across Africa, Asia and Latin America

greenlight
planet
Direct to Village



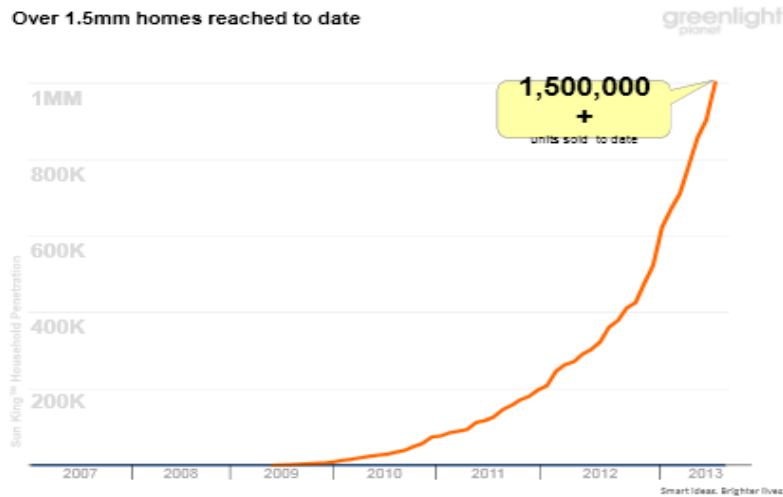
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12

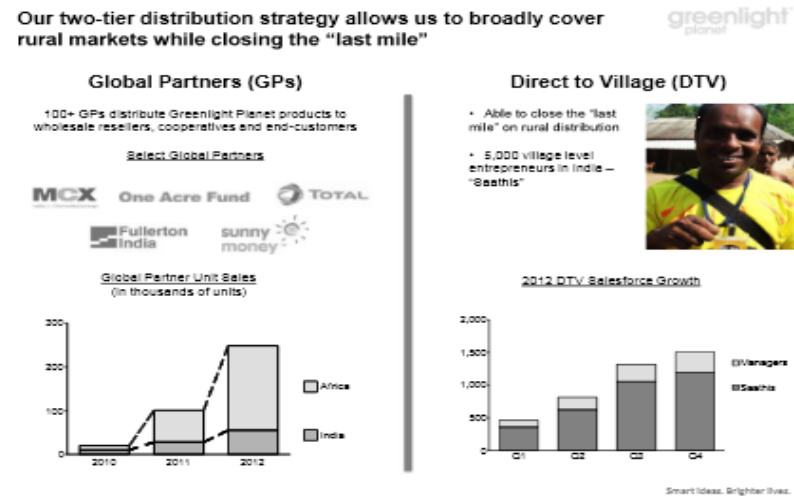
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Greenlight's Distribution Models

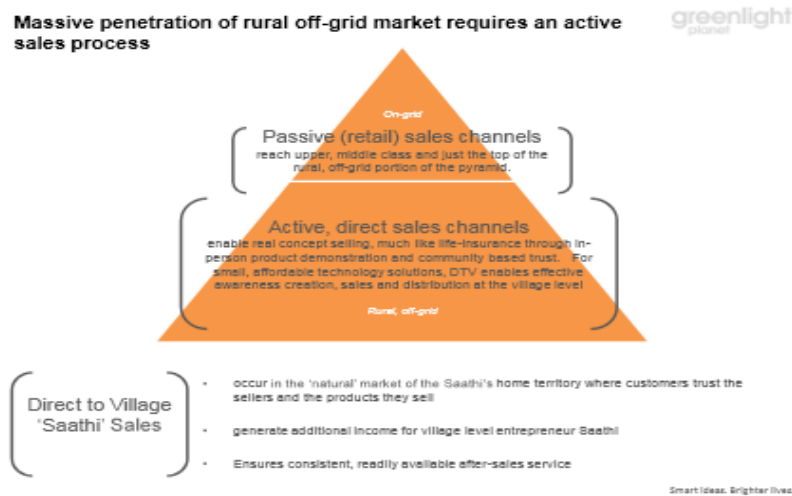
Over 1.5mm homes reached to date



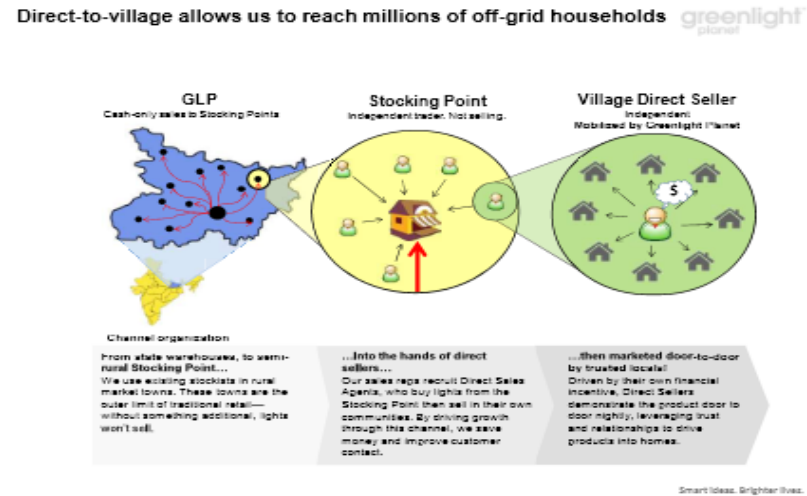
Our two-tier distribution strategy allows us to broadly cover rural markets while closing the "last mile"



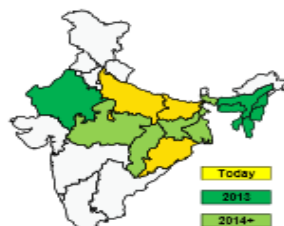
Massive penetration of rural off-grid market requires an active sales process



Direct-to-village allows us to reach millions of off-grid households



At 5,000 rural sales agents today, we reach more than 50K houses each month in 3 states



DTV Today

- 5,000+ active village sellers
- 3 states in India
- Converting 50K households/month



Sun King Saathi Profile

- Part-time, commission based sales
- Typically partially or fully employed as farmers, teachers, community workers, veterinarians, farmers, artisans, etc.
- Increase earnings by 20-100%
- Drive massive lifestyle change in his/her local community

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In Africa, Asia and LatAm we leverage a strong network of global partners

Fast-growing strategic partnerships allow us to leverage target rural households through familiar, trusted professional, social and financial networks.

greenlight
planet
Global Partnerships

AGRO

- Large agro cooperative: 100K+ farmers in East Africa
- Coop sells and finances packages of agro inputs, products and services to help farmers increase their crop yield. In the last 12 months, they have sold more than 50K Sun King Pro to farmers in East Africa through a multi-month financing plan.

MFI

- Established microfinance institution in India, covering more than 12,500 villages.
- Through a unique partnership with an MFI in multiple states, we are selling more than 10K Sun Kings/quarter through small top-up microloans to rural households.
- We sold more than 50K Sun Kings in the first 12 months of partnership, and currently average about 7K units per month.

DIRECT

- Innovative last-mile focused distribution companies are spreading across the continent
- In Ghana, Kenya, Malawi, Namibia, Tanzania, Uganda, Zambia, etc. we are working with companies solely dedicated to building direct sales channels to reach off-grid rural households

MNC

- Established, known retail brand and massive distribution presence
- We work with multinationals and country wide established distribution companies that have an existing dealer and retail presence to get products to remote areas efficiently, cost-effectively and reliably

Select Global Partners

MCX

One Acre Fund

TOTAL

Fullerton India

sunny money

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planet

Challenges to scaling even faster

Consumer awareness

- High-quality, affordable solar lighting solutions are new!
- It takes time to build awareness about a new concept and trust in a new brand

Reaching the last mile: a diligent process

- Building a last mile sales network takes time!
- Direct sales channels are costly to build, though very effective

Consumer Finance

- While consumers see value and are willing to buy Sun King, many have to wait until they have increased seasonal pay or find a way to purchase in installments

Supplier/ Importer Financing

- Innovative distribution business tie up a lot of capital in inventory; stunts growth of the last mile business

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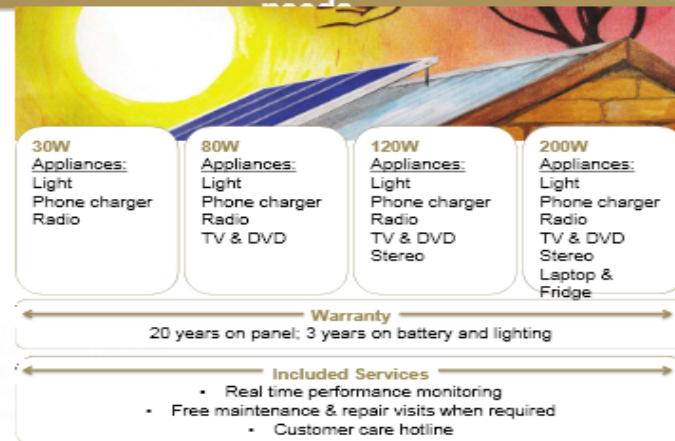
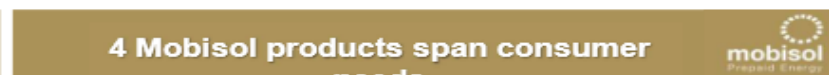
Smart Ideas. Brighter lives.

Growth Challenges

Thank you.



Affordable (prepaid)	Powerful	Innovative
<ul style="list-style-type: none"> African households pay ~\$360/year for energy Africans spend >\$10 billion on kerosene alone for lighting each year Mobisol saves ~80% on energy, creating up to 30% more income 36 months payment plan makes Mobisol prepaid product highly affordable even for the low-income population 	<ul style="list-style-type: none"> Kerosene and fire wood offer only crude lighting and cooking For less money (incremental savings), Mobisol can power many different appliances: multiple lights, mobile charging, radio, TV's, fridges, etc. Customers can generate incremental income (e.g. mobile charging business) 	<ul style="list-style-type: none"> Mobisol products can be monitored and maintained remotely System tracks SHS in real time and collects detailed user data Mobile payments are also recorded In case of default on the loan, the system can be remotely switched off, creating a high incentive to pay

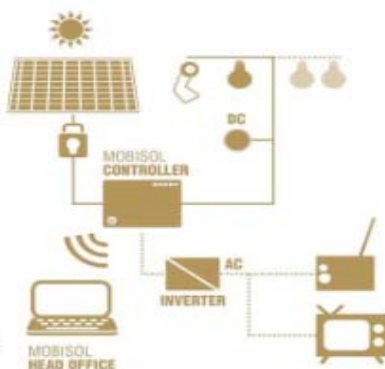


Mobisol Unique Benefits



How it works:

- Solar Home System is easily installed; trained local technicians available for support
- Mobisol Controller tracks usage remotely
- User pays monthly via phone
- 36 months credit period with 30 days flexible grace
- System shuts off in case of payment default; impossible to disable without breaking
- Free maintenance for first 3 years



Robust, innovative and mature products



Mobisol offers productive use



Business-out-of-the-box products stimulate economic activities

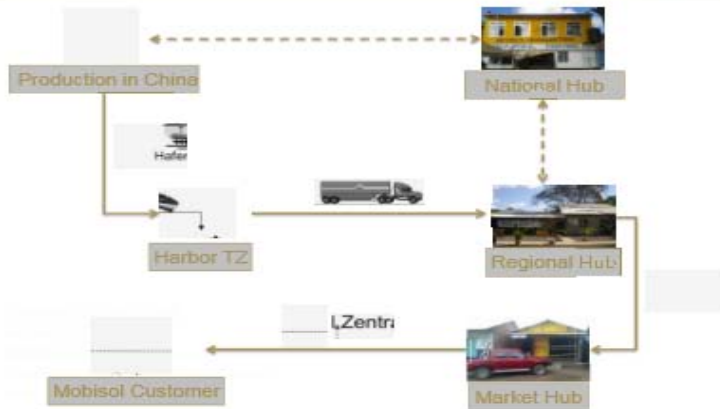
- Customers can run their own business
- ... generate additional income
- ... make the Mobisol system more affordable



Mobisol Sales & Distribution Model (1)



Mobisol Sales & Distribution Model (2)



The Intelligence: Database



Hub information

Location	Name	Capacity	Status
Arusha	Arusha	100000	Active
Dar es Salaam	Dar es Salaam	200000	Active
...

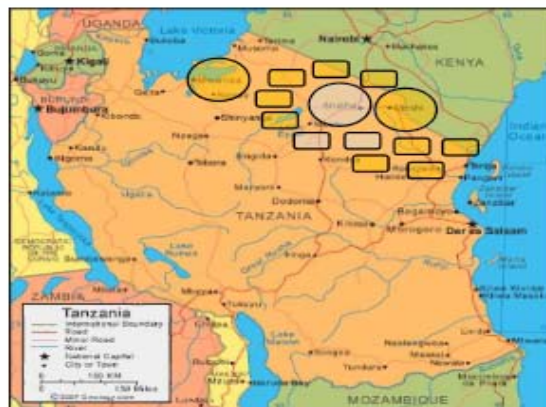
Hub-related Technicians and Marketing Agents

Customer/System Information in that Hub

Sales and distribution process can be easily monitored:

- Where SHS are stored
- To which Market Hub SHS were delivered
- How many SHS were sold and by which Marketing Agent
- Who installed the SHS and
- Who was responsible for maintenance

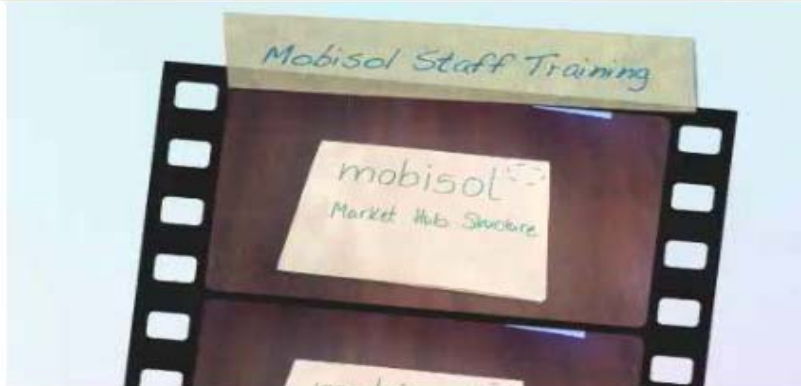
Hub Development



Plan to open 2 more Regional Hubs and 18 more Market Hubs in Tanzania within the next 18 months

- Current Regional Hub
- Planned Regional Hub
- Current Market Hub
- Planned Market Hub

Mobisol Hub Structure



THANK YOU VERY MUCH!



Vision
2015



Challenges in the off-grid market

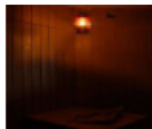
GIZ – Last Mile Roundtable
December 2013

Güngör Kara (CEO and Founder)
Tel: +49 179 59 54 963
Email: g.kara@prosonergy.com

Prosonergy is a sales and distribution company of
affordable solar products for low-income customers

Impact

Improve living standards of
1.4 billion BOP¹⁾ customers w/o
electricity in Africa and Asia



Kerosene Lanterns²⁾

- Expensive
- Damages health
- Damages environment

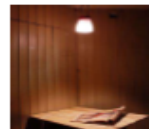
Mission

Increase availability of solar
powered systems for B2B
distributors in Africa and Asia



Goal

Strong sales and distribution
company for solar powered
products systems



Solar lighting systems²⁾

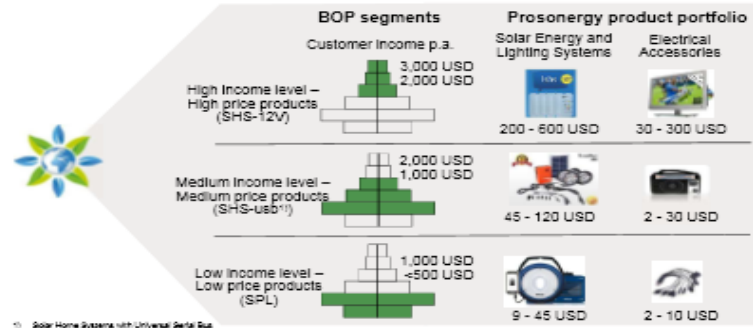
- Cheaper
- Zero health impact
- Environmental-friendly

1) Bottom of the Pyramid segments reside in developing countries with an annual income below 2,000 USD
2) Sales: Worldwide of Prosonergy, Middle East, Europe, Africa, Asia 2012
City: 26, Market coverage in 2012, Callberg 2012
Source: Bright Products, Nima Solar

Dec. 2013 2

We cover all income levels of the BOP customers in
developing countries with our segmented product portfolio

Prosonergy Product Portfolio



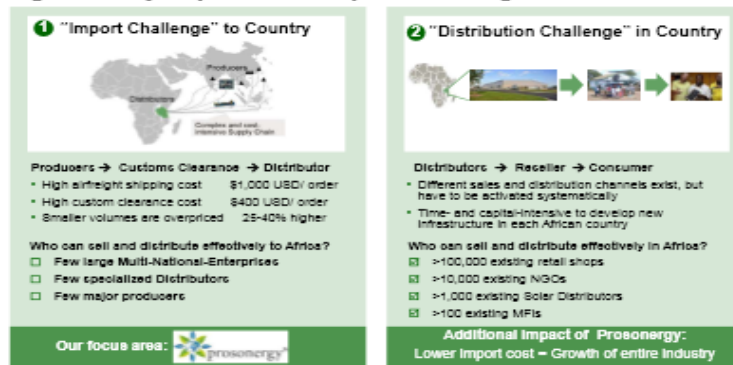
Dec. 2013 3

During our field-test in Tanzania we analyzed all supply chain steps to understand restrictions and opportunities

Area and duration	Cooperation partners	Suppliers and products	Shipments to Tanzania
<ul style="list-style-type: none"> Field-test in ten rural regions in Tanzania and one in Uganda Between April 20th – Aug 3rd 2013 	<ul style="list-style-type: none"> Non-profit organization "African Solar Rise" (ASR) and 11 MBA students from HEC University in France and German Universities 	<ul style="list-style-type: none"> Eight certified suppliers from Europe, USA, China and Thailand Purchased hundreds of different off-grid lighting products for 	<ul style="list-style-type: none"> Very high shipment cost, compared to value of products We organized shipments ourselves, due to weakness of producers 
Customs Clearance	Training Entrepreneurs	In-country Distribution	Marketing and Sales
<ul style="list-style-type: none"> Consolidated shipments through producers were not possible Very high cost for customs clearance (multiple orders) 	<ul style="list-style-type: none"> Build training facility (rural hut) in Ger es Salaam Trained local entrepreneurs in installation and sales 	<ul style="list-style-type: none"> Different "Last-Mile" distribution channels tested 	<ul style="list-style-type: none"> Different sales channels piloted in rural and urban areas 

Dec. 2013 4

We have identified two major challenges and focusing to significantly improve the import challenge for distributors



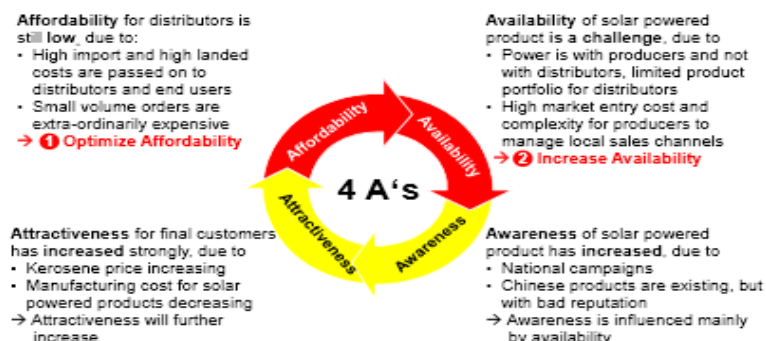
Dec. 2013 5

Availability and affordability of solar powered products are the key challenges to satisfy market demand

Situation	Producers (Western companies with manufacturing sites in Asia)	Distributors (Solar Distributor, retail chain, non-profit organizations, etc.)	Final Consumers (consumer in rural region)
Affordability	<ul style="list-style-type: none"> Own sales staff needed to enter each country → High complexity and investment cost Long sales cycles, fragmented distribution chain and increasing competition 	<ul style="list-style-type: none"> Ordering from producers is time consuming, difficult to compare product performance Limited access to producers and weak marketing knowhow for these products 	<ul style="list-style-type: none"> Product preferences vary based on local circumstances and different income levels Electrical appliances are not available across producers and product lines
Availability	<ul style="list-style-type: none"> Customers want smaller sample sizes at the beginning, but this is most of the time below minimum order quantity (noise maker) 	<ul style="list-style-type: none"> Requires small volumes to test the local market demand Landed cost are too high and minimize operating profit 	<ul style="list-style-type: none"> Current sales and distribution channels are not trustworthy and does not provide After-Sales service

Dec. 2013 6

The coverage of solar powered products is very low and restricted mainly by affordability and availability



Dec. 2013 7

APPENDIX F: ELABORATION OF ACTIVITIES PROVIDED BY DEVELOPMENT PARTNERS

GIZ involvement in solar off-grid products

Countries of operation

- Solar off-grid lighting is the focus of programmes in: Bangladesh, Benin, Bolivia, Burundi, Cameroon, Ethiopia, Kenya, Liberia, Mali, Mozambique, Peru, Rwanda, Tanzania, and Uganda
- Solar technologies are also in the focus of programmes in: Afghanistan, Honduras, India, Nicaragua, Nigeria (upcoming), and Senegal.

Activities

Overview

GIZ started solar activities in 2007 with tests of products with Fraunhofer ISE, which set the basis for the Lighting Africa technical specification

- Seminal 2008 Deutsche Gesellschaft für Technische Zusammenarbeit GmbH (GTZ) publication “What difference can a picoPV system make?” raised awareness among donors and development partners
- Focus on small solar lighting systems (i.e., Pico PV and Micro Solar Home systems)
- Promote Lighting Africa-approved small solar lighting systems and supports other products where sufficient evidence indicates that they comply with certain standards, including additional internal standards beyond Lighting Africa (batteries, lumen output)
- Engage primarily within the framework of EnDev programmes

Approach

- Establish and strengthen sustainable and commercially viable supply and distribution models for quality solar lighting systems in collaboration with the private sector
- Strengthen supply and demand

Support

General:

- Support and collaborate with **Global Off-Grid Lighting Association (GOGLA)**
- Collaborate with Lighting Africa on quality assurance
- Develop pilot programs to test market development concepts (e.g., results-based financing)
- Support Global Tracking Framework and definitions of tier system for energy access
- Carry out impact studies about the benefits of off-grid lighting and electrification
- Compile a knowledge platform with the biggest open-source picoPV database (Energypedia)

Along the value chain:

- Collect market data in the form of baseline studies
- Identify potential entrepreneurs (mainly “last mile” entrepreneurs)
- Train and build the capacity of entrepreneurs on solar business; solar technicians (vocational)
- Support local start-ups
- Link entrepreneurs to the dealers and other relevant partners
- Establish linkages among financial institutions, government agencies, other potential partners (e.g., non-governmental organizations [NGOs]), cooperatives, women, and youth groups
- Identify appropriate mechanisms for after sales services and recycling
- Support universities and labs to conduct studies and support public institutions on quality assurance (field and lab tests)

Creating an enabling environment:

- Promotion
- Awareness creation
- Monitoring
- Policy influence/tax issues
- Support to associations

Practical Action involvement in solar off-grid products

Countries of operation

- Solar off-grid lighting: Bangla Desh, India, Kenya, Nepal, Peru, and Zimbabwe
- Solar technologies are also in the focus of the programmes in: other countries in Eastern Africa (e.g., Burundi Rwanda); Southern Africa (e.g., Malawi, Mozambique, and Zambia); and West Africa (e.g., Burkina Faso, Mali, and Senegal)

Activities

Overview

- Produce the Lighting Africa Toolkit: catalogue resource material, lessons, and good practice market development in the pilot countries.
 - The Toolkit presents a comprehensive resource for countries wishing to integrate modern off-grid lighting in their energy access efforts
 - The Toolkit is structured according to the six market elements of the Lighting Africa program: Access to finance; Business development support; Consumer awareness; Public-sector engagement; Market intelligence and Quality assurance
- Support the Global Tracking Framework and definitions of tier system for energy access
- Develop knowledge products and disseminate knowledge through Practical Answers—the Technical Information Service of Practical Action
- Train local entrepreneurs in production, distribution, and marketing of energy goods and in energy business management
- Evaluate solar PV companies for funding to scale-up of Lighting Africa-approved products

Approach

The private sector is very innovative in getting to the last mile customer, but is still challenged to deliver to remote, sparsely populated areas in a low-cost and commercially viable way. Donors need to support the market in a way that ensures that their investment targets poor people in a sustainable way.

Practical Action sees its role as a facilitator to bridge the gap between commercial viability and reaching the poorest people in the off-grid solar PV market, as well as to promote the need for a greater role for civil society to provide support to do the same, in its countries of operation. Practical Action's expertise is in our systems and market-based approach. Our independence from the market enables us to engage in policy discussions and programme design and delivery without a conflict of interest.

Support

General

- Support donors, the private sector, and other non-governmental organisations (NGOs) in programme design and delivery to support the market
- Design grant and finance facilities that can stimulate the market
- Identify gaps and roles of civil society and how they can support market development
- Work with private sector organisations to test and innovate new business models that extend their distribution; access grant finance and provide a safe space for innovation for a private sector partnership
- Quantify the Human Development Impacts of off-grid solar PV lighting and electrification Through impact studies

- Carry out participatory needs assessments and socio-economic analysis in off-grid, low-income, peri-urban and rural communities
- Develop knowledge products; disseminate knowledge and monitor/assess impact of the knowledge products through Practical Answers
- Develop analytical frameworks for solar product markets to help stakeholders understand and engage constructively in the market
- Conduct research and analysis on energy access and its impacts to inform national and global initiatives
- Train entrepreneurs in production, distribution, and marketing of energy goods and services and energy business management
- Mainstream gender in off-grid lighting projects, programmes, and policies as national focal point for Energia,

Along the value chain

- Develop new and innovative business models using grant finance
- Identify and disseminate best practices: Practical Action can analyse initiatives in different regions/countries and have websites for knowledge sharing
- Provide capacity building for both private and public sector: providing trainings and develop skills for business and approaches
- Use proprietary Participatory Market System Development (PMSD) approach to stimulate the off-grid lighting market; support common good market development activities by bridging the gap between public, private, and consumers by engaging in the following activities:
 - Facilitating dialogue between groups and represent the “voiceless poor”
 - Awareness-raising
 - Policy dialogue and understanding; facilitating policy working groups
 - Business development
 - Building partnerships and dialogue with manufacturers and distributors
- Support the dissemination of solar products in disaster and relief situations

Creating an enabling environment

- Support national- and district-level policy development
- Design implementation strategies that allow national policies to be understood and put into practice by communities
- Develop frameworks and indicators for defining and measuring access to energy
- Inform product standards and quality control
- Build capacity of finance Institutions in off-grid lighting products, systems and services

UN Foundation's Energy Access Practitioner Network involvement in solar off-grid products

Countries of operation

- Solar off-grid lighting: 700 Practitioner Network members provide or work with solar PV solutions. Practitioner Network members are present in 191 countries of operation

Activities

Overview

The Energy Access Practitioner Network was founded in 2011, and draws together a wide range of businesses, investors, and civil society organizations working to deliver sustainable energy services—and the economic and social benefits they bring—to communities and households in areas beyond the reach of the conventional grid.

- Comprised of over 1,500 members in the off-grid renewable energy space; covers a broad base of solution sets and is "technology agnostic"
- Serves as a "network of networks" to help develop a global approach to addressing energy access issues towards the achievement of universal energy access
- Draws on the combined practical experience of the people working on the front lines of delivering energy services around the world, with a strong focus on market-based approaches
- Supports quality and sustainability of approach; helps mainstream new technologies, business models, and financing mechanisms that clearly have potential for strong positive impact for consumers and communities
- The United Nations Foundation serves as the virtual secretariat of the Global Lighting and Energy Access Partnership (Global LEAP), working closely with the U.S. Department of Energy and other partners on rural electrification standards, which the International Electrotechnical Commission (IEC) has established this year under the TS 62257 series
- Helps ensure that the sector adopts a robust approach to quality products and services

Approach

- Facilitate the identification and dissemination of best practices among members; connect investors to potential project opportunities; and support information exchange, policy development, and planning at the international, regional, and country levels through webinars, telephone, and in-person meetings
- Facilitate new partnerships among practitioners and between practitioners and investors to scale up energy access projects
- Focus on country engagement as the Sustainable Energy for All Initiative (SE4All) moves forward with activities on the country level
- Support Sustainable Energy Network Ghana (SENG) as its first country affiliate; replicate this Network support in India.

Support

General

- Forge new partnerships among practitioners and between practitioners and investors to scale up energy access projects

- Introduce investors to practitioners via webinars, in-person meetings, and targeted media
- Facilitate practitioner participation in global fora to bring greater visibility to the challenges they face in delivering access to energy, including speaking opportunities at high-level events
- Encourage international peer-to-peer knowledge transfer by enabling start-ups to remotely share lessons learned
- Serve as an umbrella for existing efforts in the sector to encourage better coordination among key actors, and as a bridge between practitioners and the multilateral agencies within SE4All.

Along the value chain

- Highlight the level and nature of small-scale off-grid electrification efforts by country through the membership directory: <http://www.energyaccess.org/resources/member-directory>
- Highlight import tariffs and other trade indicators in all SE4All opt-in countries in the import tariff and barriers to entry database: <http://www.energyaccess.org/resources/tariffs-database>
- Strengthen the importance given to sustainable energy in “Towards Achieving Universal Energy Access by 2030,” the outcome document of the Rio+20 Summit, by promoting recommendations by practitioners to reach the universal energy access goal: http://sun-connect.net/fileadmin/DATEIEN/Dateien/Practitioner_Network_report_-_UN_Foundation_2012.pdf
- Provide an overview of opportunities to invest in more than 140 organizations delivering a range of decentralized energy solutions in developing countries for the next 12–18 months, totaling US \$250 million, in “Investing in Energy Access: 2013 Directory of Investment and Funding Opportunities” : http://www.gvepinternational.org/sites/default/files/resources/unf_practitionernetworkfinal.pdf
- Provide informal match-making

Creating an enabling environment

- Promote quality products and innovative business models
- Undertake awareness-raising efforts
- Engage in information-sharing activities (webinars, monthly calls, in-person meetings, workshops)
- Provide doorstep services and latest news on energy access at www.energyaccess.org.

UNEP en.lighten's involvement in off-grid lighting

Countries of operation

- Currently operating in: Benin, Burkina Faso, Cabo Verde, Cote d'Ivoire, The Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo;
- Focus to expand in: East Africa, South Asia, Southeast Asia, and Small Island Developing States (SIDS).

Activities

Overview

Voluntary Global efficient lighting partnership programme to support national regulators and regional bodies to develop strategies and actions to phase-out inefficient lighting products.

- Assists developing and emerging countries to design sustainable enabling policy framework for off-grid lighting through the development of national /Regional Efficient Lighting strategies (including off-grid lighting).
- Started off-grid lighting activities in 2010 by setting an off-grid lighting taskforce comprised of leading international experts to improve the available information on the potential benefits and successful policy frameworks for energy efficient off-grid lighting technologies.
- Respond to 2012 request by West African countries to develop a coherent strategy for off-grid lighting in the framework of the ECOWAS Energy Efficiency Policy.
- Promotes the acceleration and penetration of efficient off-grid lighting products in Africa and
- Promotes investment and policy support in West Africa by bringing together governments, the private sector, donors, and development agencies through working groups and workshops.

Approach—“The integrated policy approach for designing policy measures”

- Leverage Minimum Energy Performance Standards (MEPS) to ensure product efficiency and quality
- Support policies and mechanisms to help restrict the supply of inefficient lighting and support the demand for compliant products
- Discourage the distribution of poor quality products through monitoring, verification and enforcement
- Encourage a comprehensive disposal and programme throughout the product lifecycle through the application of environmentally sound management of products

Support

General:

- Promote the acceleration of modern and sustainable off-grid lighting solutions, using the United Nations' convening power as appropriate, by creating national, regional, and global policy consensus
- Host GOGLA's secretariat for a year; collaborate with GOGLA through the Policy working group

Creating an enabling environment:

- Facilitate rapid development of off-grid lighting-enabling policies
- Promote and increase awareness to phase out inefficient lighting (e.g., fuel lighting)
- Support development of national, environmentally sound management systems for off-grid lighting products (e.g., development of legislation for collection, disposal of products)

- Establish links and coordinate with relevant donors, government agency and actors in the off-grid lighting sector to build partnerships

Along the value chain:

- Leverage online and expert resources:
 - Off-Grid Country Lighting Assessments estimate the savings potentials for the off-grid lighting market for over 80 countries that have a high number of off-grid end users
 - Guidebook for the Development of a Nationally Appropriate Mitigation Action (NAMA) on Efficient Lighting
 - Provide technical assistance, forecasting tools, publications, guidance documents and webinars
 - Regional Report on Efficient Lighting examines and assesses the energy sector and efficient lighting initiatives in Sub-Saharan African countries
- Promote and distribute upcoming resources and publications (supported by BMZ)
 - Best Practices Policy Guide to guide how countries could put in place energy policies to promote sustainable deployment of off-grid lighting products
 - Impact studies about the benefits of off-grid lighting
 - Assessment of the impact of fuel-based lighting on health and safety
 - Assessment of the effect of energy subsidies on the off-grid lighting market
 - Impact of efficient lighting market transformation on green economy jobs creation
 - ECOWAS Regional Efficient Lighting Strategy and Action Plan on implementing the lighting component of the ECOWAS Energy Efficiency policy
 - ECOWAS Regional Status Report on efficient lighting examines energy sector and efficient lighting initiatives in ECOWAS countries